

CLAIMS

What is claimed is:

- 5 1. A method for treating biologic tissue with pulse light, comprising:
generating a long effective output light pulse comprising a series of
sub-pulses having a fractional duty cycle over a selected effective pulse duration,
a periodicity that is less than the thermal relaxation time of a targeted structure,
and an interpulse-delay between successive sub-pulses that is greater than the
10 thermal relaxation time of non-targeted structures within the treatment area; and
delivering the output light to the tissue of a patient.
- 15 2. The method as described in Claim 1 wherein the output light pulse comprises a
laser light pulse.
3. The method as described in Claim 1 wherein the effective pulse duration is
approximately equal to the thermal relaxation time of the targeted structure.
- 20 4. The method as described in Claim 1 wherein the targeted structure comprises
blood vessels.
5. The method as described in Claim 4 wherein the targeted blood vessels are larger
than 30 microns in diameter.
- 25 6. The method as described in Claim 1 wherein the effective pulse duration is larger
than 0.1 msec.

7. The method as described in Claim 1 wherein the effective pulse duration is larger than 0.5 msec.
8. The method as described in Claim 1 wherein the effective pulse duration is larger than 5 msec.
9. The method as described in Claim 1 wherein the effective pulse duration is larger than 50 msec.
10. The method as described in Claim 1 wherein the non-targeted structures include normal-sized blood-vessels.
11. A system for treating biologic tissue, comprising:
 - a pulse light source for generating a long effective output light pulse comprising a series of sub-pulses having a fractional duty cycle over a selected effective pulse duration, a periodicity that is less than the thermal relaxation time of a targeted structure, and an interpulse-delay between successive sub-pulses that is greater than the thermal relaxation time of non-targeted structures within the treatment area; and
 - 20 a light delivery system that transmits the pulse light to the tissue of the patient.
12. The system as described in Claim 11 wherein the pulse light source is a laser.
- 25 13. The system as described in Claim 12 wherein the laser is a dye laser.

14. The system as described in Claim 12 wherein the laser is a gas discharge laser.
15. The system as described in Claim 12 wherein the laser is a solid-state laser.
- 5 16. The system as described in Claim 12 wherein the laser is an alexandrite laser.
17. The system as described in Claim 12 wherein the laser is a ruby laser.
18. The system as described in Claim 12 wherein the laser is an Nd:YAG laser.
- 10 19. The system as described in Claim 11 wherein the effective pulse duration is approximately equal to the thermal relaxation time of the targeted structure.
20. The system as described in Claim 11 wherein the targeted structure comprises blood vessels.
- 15 21. The system as described in Claim 20 wherein the targeted blood vessels are larger than 30 microns in diameter.
- 20 22. The system as described in Claim 11 wherein the non-targeted structures include normal-sized blood-vessels.